



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,751	03/24/2004	Thomas E. Bolander	GP-303471	4303

7590 09/07/2005

CHRISTOPHER DEVRIES  
General Motors Corporation  
Legal Staff, Mail Code 482-C23-B21  
P.O Box 300  
Detroit, MI 48265-3000

EXAMINER
----------

TRAN, BINH Q

ART UNIT	PAPER NUMBER
----------	--------------

3748

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

<b>Office Action Summary</b>	Application No. 10/807,751	Applicant(s) BOLANDER ET AL.	
	Examiner BINH Q. TRAN	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

*Claims 1-34 are rejected under 35 U.S.C. 102 (b) as being anticipated by Klopp et al. (Klopp) (Patent Number 6,148,613).*

Regarding claims 1, and 14, Klopp discloses a method of reducing exhaust emission from a catalytic converter (e.g. 70, 72, 74, 84, 86, 88) apparatus of a vehicle, the apparatus including at least one catalytic converter (e.g. 70, 72, 74, 84, 86, 88), each of the at least one catalytic

Art Unit: 3748

converter having a catalyst brick (e.g. 70, 72, 74, 84, 86, 88) positioned within a predefined length of the vehicle, said method comprising directing exhaust to pass more than once through the predefined length through at one of the at least one catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 2, Klopp further discloses that at least while the exhaust has a low exhaust pressure (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 3, Klopp further discloses that the at least one catalyst brick includes at least one catalyst, said method further comprising effecting a transfer, to the at least one catalyst, of heat remaining in exhaust that has passed at least once through the predefined length (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 4, Klopp further discloses that wherein effecting a transfer of heat comprises directing exhaust to flow between the catalyst brick and a canister wall of said at least one catalytic converter (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 5, Klopp further discloses that wherein directing exhaust to pass more than once through the predetermined length comprises directing exhaust to pass at least twice through said at least one catalyst brick converter (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 6, Klopp further discloses that directing exhaust to pass at least twice through said at least one catalyst brick comprises directing exhaust to pass at least twice through the same catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 7, Klopp further discloses that the catalytic converter apparatus includes a plurality of catalytic converters connected in parallel to receive the exhaust, said method further comprising directing the exhaust through a series connection of the converters for a predetermined time period after starting the vehicle (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 8, Klopp further discloses the step of closing said series connection and opening said parallel connection after said time period (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claims 9 and 25, Klopp discloses method of reducing exhaust emission from a catalytic converter apparatus including a catalytic converter (e.g. 70, 72, 74, 84, 86, 88) having a catalyst surface area to which the exhaust is exposed while making a pass-through of the apparatus, said method comprising effecting a transfer, to said catalyst surface area, of heat remaining in the exhaust after being exposed to said catalyst surface area (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 10, Klopp further discloses the step of limiting said catalyst surface area to less than a total surface area to which the exhaust is exposed during the pass-through of the apparatus, and effecting a transfer of heat from the total surface area to the limited catalyst surface area (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 11, Klopp further discloses the step of effecting a transfer of heat from the total surface area comprises effecting a transfer of heat from at least one of a canister wall

Art Unit: 3748

and a ring of catalytic surface area surrounding the limited catalytic surface area of said catalytic converter (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 12, Klopp further discloses the step of effecting a transfer of heat is performed while the exhaust completes the pass-through (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 13, Klopp further discloses the step of effecting a transfer performed at least while the exhaust has a low exhaust pressure (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 15, Klopp further discloses that wherein said at least one directing element effects a transfer of heat from the exhaust to one of said at least one converter (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 16, Klopp further discloses that wherein said at least one catalyst brick comprises at least one cross-sectional area, said at least one directing element comprising a sleeve forming an inlet to said catalyst brick and that directs the exhaust toward at least a portion of said at least one cross-sectional area (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 17, Klopp further discloses that wherein said sleeve comprises a door that opens or closes in response to a pressure of the exhaust (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 18, Klopp further discloses that wherein said sleeve comprises at least one of a cylindrical shape and a truncated conical shape (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Art Unit: 3748

Regarding claim 19, Klopp further discloses that wherein said at least one directing element comprises a bowl mounted at least partly over an outlet of said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 20, Klopp further discloses that wherein said at least one catalyst brick comprises at least one cross-sectional area and said bowl directs the exhaust toward at least a portion of said at least one cross-sectional area (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 20, Klopp further discloses that wherein said bowl directs the exhaust to flow alongside said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 22, Klopp further discloses that wherein said bowl comprises a door that opens or closes in response to a pressure of the exhaust (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 23, Klopp further discloses that at least one canister in which said at least one catalyst brick is mounted, said at least one directing element comprising at least one end wall of said canister (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 24, Klopp further discloses that wherein said at least one catalytic converter comprises a plurality of converters connected in parallel, said at least one directing element comprising a switching assembly that alternates connection of said converters between said parallel connection and a series connection of said converters (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 26, Klopp further discloses that wherein said catalyst surface area is comprised by a catalyst brick and said at least one directing element directs the exhaust to flow within said converter apparatus a distance in addition to a length of said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 27, Klopp further discloses that wherein said at least one converter comprises a catalyst brick, said at least one directing element comprising a sleeve forming an inlet to said catalyst brick and that directs the exhaust toward at least a portion of a cross-sectional area of said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 28, Klopp further discloses that wherein said sleeve comprises at least one of a cylindrical shape and a truncated conical shape (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 29, Klopp further discloses that wherein said sleeve comprises a door that opens or closes in response to a pressure of the exhaust (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 30, Klopp further discloses that wherein said at least one converter comprises a catalyst brick, said at least one directing element comprising a bowl mounted at least partly over an outlet of said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 31, Klopp further discloses that wherein said bowl directs the exhaust toward at least a portion of a cross-sectional area of said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).



Art Unit: 3748

Regarding claim 32, Klopp further discloses that wherein said bowl directs the exhaust to flow alongside said catalyst brick (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 33, Klopp further discloses that wherein said bowl comprises a door that opens or closes in response to a pressure of the exhaust (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

Regarding claim 34, Klopp further discloses that wherein said at least one converter comprises a catalyst brick mounted in a canister, said at least one directing element comprising at least one end wall of said canister (e.g. See Figs. 5-8; col. 6, lines 56-67; cols. 7-8, lines 1-67; col. 9, lines 1-18).

#### *Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Patil et al. (Pat. No. 5125231), Urban (Pat. No. 4047895), Matros et al. (Pat. No. 5768888), Schatz (Pat. No. 5130099), and Frederiksen et al. (Pat. No. 6312650) all discloses an exhaust gas purification for use with an internal combustion engine.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT  
September 02, 2005



Binh Q. Tran  
Patent Examiner  
Art Unit 3748